Rigid Board Insulation Installed as Draft Stop in Attic Kneewall - Code Notes

Rigid board insulation (foam plastic) is an effective draft stop, while providing part of the required R-value of the attic kneewall, if installed on the attic side of the kneewall. The IRC requires foam plastic insulation to be protected against ignition by using fiberglass batt insulation, gypsum board, or other products that meet the flame and smoke density requirements. Foam plastic products rated for flame and smoke density can be installed without such a protective covering.

Insulating attic kneewalls between a conditioned space and the attic is important to reduce energy loss through the wall, especially in the summer months. To be effective, the insulation installed in the stud cavity of kneewalls must be supported so that it stays in contact with the gypsum board and is protected against air moving through the insulation. To provide an effective air barrier, the insulation joints must be sealed.

photo by Britt-Makela Group

Foam plastic insulation can be installed on the attic side of the attic kneewall (see Figure) to act as a draft stop between the conditioned house and the unconditioned attic and to provide part of the required insulation R-value of the attic kneewall. Installing such an insulating backing in the kneewall supports the fiberglass batt insulation between framing members, replaces an air barrier, and adds insulating value to the attic kneewall.

Plan Review

1. Verify that the plastic insulation called out on the construction detail meets the requirements for flame spread and smoke development, such as ASTM E 84 or tests related to actual end use. Require manufacturer literature or an ICC Evaluation Service report.
2. Verify that the combined insulation R-value of the foam plastic and stud cavity insulation called out on the building plans meets or exceeds the R-value requirements called for on the energy code compliance documentation.

Field Inspection

1. Verify that the foam plastic and stud cavity insulation installed in the field is consistent with that called out on the building plans.
2. Verify that the insulation R-value specified on the insulation meets or exceeds the R-value called out on the

plans or documentation.

3. Verify that that sealant or tape has been installed around the edges/joints of the insulation and that any holes or penetrations in the foam plastic insulation are sealed.

Code Citations*

IRC 2000, Section R318.2.3 and IRC 2003, Section R314.2.3

Within attics and crawlspaces, where entry is made only for servicing utilities, foam plastics shall be protected against ignition by 1.5 inch-thick (38 mm) mineral fiber insulation, 1/4-inch-thick (6.4 mm) wood structural panels, 3/8-inch (9.5 mm) particleboard, 1/4-inch (6.4 mm) hardboard, 3/8-inch (9.5 mm) gypsum board, or corrosion-resistant steel having a base metal thickness of 0.016 inch (0.406 mm).

IRC 2000, Section R318.3

Plastic foam not meeting the requirements of Section R318.1 and R318.2 may be specifically approved on the basis of one of the following approved tests: ASTM E 84, FM 4880, UL 1040, ASTM E152, or UL 1715, or fire tests related to actual end-use configurations. The specific approval may be based on the end use, quantity, location, and similar considerations where such tests would not be applicable or practical.

IRC 2003, Section R314.3

Plastic foam not meeting the requirements of Section R318.1 and R318.2 may be specifically approved on the basis of one of the following approved tests: ASTM E 84, FM 4880, UL 1040, NFPA 286, ASTM E152, or UL 1715, or fire tests related to actual end-use configurations. The specific approval may be based on the end use, quantity, location, and similar considerations where such tests would not be applicable or practical.

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